



RES-E auctions in the Mediterranean Region

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Outline

1. INTRODUCTION
2. PROCESS AND OPTIONS OF AUCTION
3. CASE STUDIES
4. RECOMMENDATIONS/ CONCLUSIONS

1. INTRODUCTION



Introduction

◦ MARKET-BASED, COMPETITIVE BIDDING PROCESSES, I.E., AUCTIONS, ARE BECOMING A DOMINANT POLICY INSTRUMENT FOR SECURING FUTURE ELECTRICITY PRODUCTION FROM RENEWABLE ENERGY SOURCES (RES) AROUND THE WORLD.

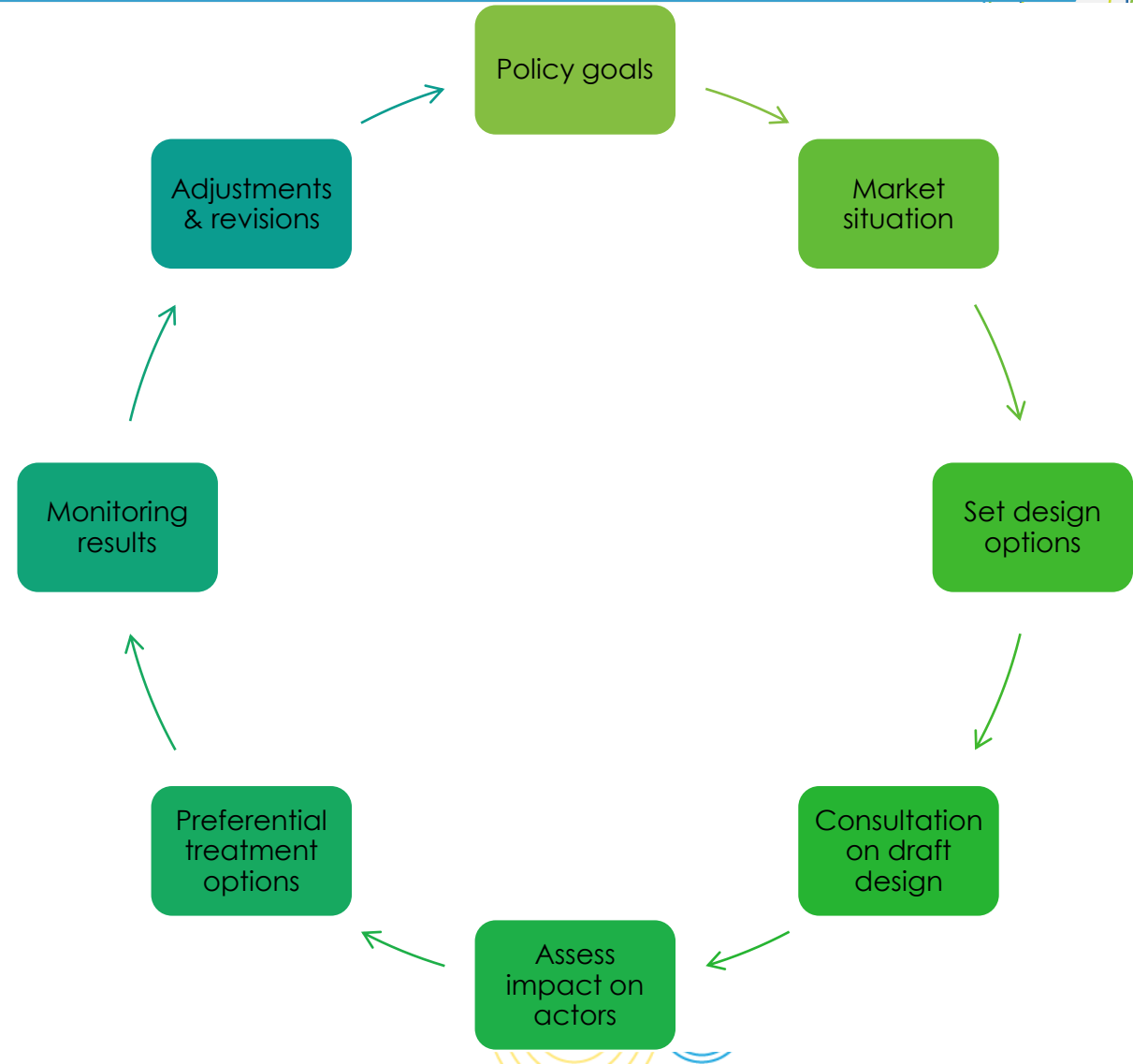
◦ MEDREG IN 2019 CARRIED OUT A REPORT ON
"ANALYSIS OF AUCTION MECHANISMS TO PROMOTE RES"

OBJECTIVE: GATHER AND SHARE INFORMATION ON THE RES AUCTION PRACTICE BY MEDREG MEMBER COUNTRIES ACROSS THE WIDER MEDITERRANEAN REGION.

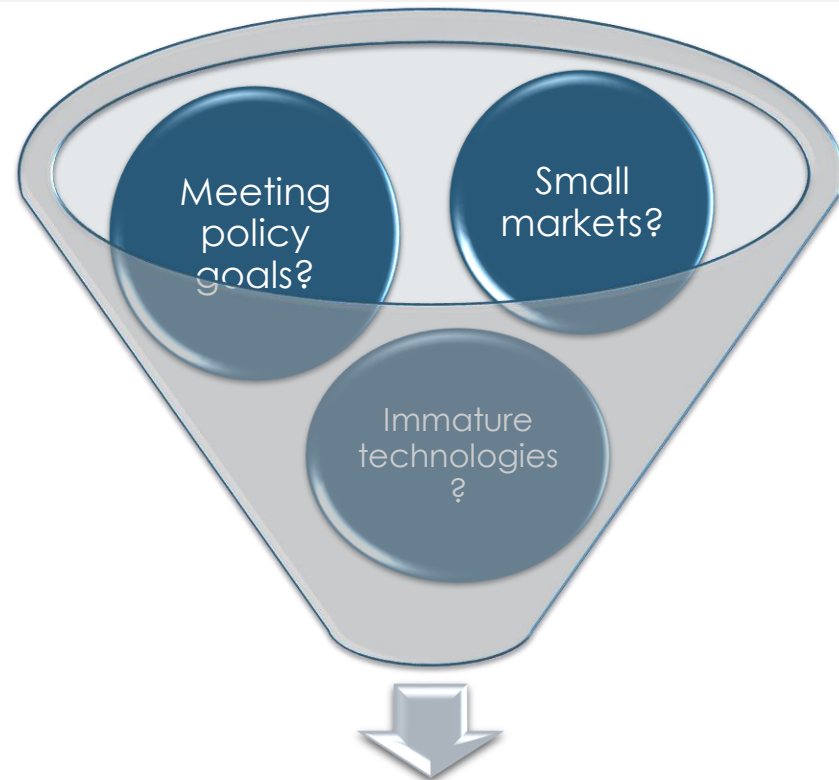


2. PROCESS AND OPTIONS OF AUCTION

Process of Auctions



Are auctions a good idea?



Auction Type

AUCTIONS CAN BE ORGANISED EITHER WITH A STATIC OR DYNAMIC BIDDING PROCESS.

- IN A **STATIC AUCTION**, ONE BID IS SUBMITTED FOR EACH PROJECT, AND THE AUCTIONEER THEN EVALUATES ALL BIDS. DURING THE AUCTION PROCESS, BIDDERS DO NOT KNOW THE BIDS SUBMITTED BY THEIR COMPETITORS.
- IN A **DYNAMIC AUCTION** ON THE OTHER HAND, BIDDING TAKES PLACE OVER SEVERAL ROUNDS. BIDDERS THUS HAVE THE CHANCE TO OBSERVE THE DEVELOPMENT OF THE AUCTION PRICE AND OTHER BIDDERS' BIDS AND TO ADAPT THEIR BIDDING STRATEGIES DURING THE AUCTION PROCESS.

Categories of Competitive procedures

- **PRICE-BASED TENDERS**, WHERE THE BIDS WITH THE LOWEST OFFERED SUPPORT LEVELS WILL BE AWARDED
- **MULTI-CRITERIA TENDERS**, WHERE THE AWARDING OF A BID IS SUBJECT TO AN EVALUATION OF VARIOUS CRITERIA.

Forms of Auction-Allocated Support

AUCTION-ALLOCATED SUPPORT CAN BE PAID IN DIFFERENT FORMS, THE MOST RELEVANT OF WHICH ARE:

- a) FEED-IN TARIFF (FIT)
- b) FIXED FEED-IN PREMIUM (FIXED FIP)
- c) SLIDING FEED-IN PREMIUM (SLIDING FIP) – ALSO KNOWN AS CONTRACT FOR DIFFERENCE (CFD)
- d) INVESTMENT GRANT

RES Auction design elements



Renewable Energy Legislation

- RES DIRECTIVE 2018/2001/EC
- GUIDELINES ON STATE AID FOR ENVIRONMENTAL PROTECTION AND ENERGY 2014-2020
- SPECIAL RES LEGISLATION AND REGULATORY REGIME EXISTS IN COUNTRIES OF MED REGION (ALBANIA, EGYPT, ISRAEL, JORDAN AND LEBANON HAVE PROVIDED RELEVANT INFORMATION)

Trends in renewable Energy Auctions

TRENDS IN TECHNOLOGY

- ACCORDING TO IRENA'S REPORT, THERE IS STILL A PREFERENCE FOR PROVEN TECHNOLOGIES. SOLAR PV AND ONSHORE WIND ARE THE MOST SEARCHED FOR, FOLLOWED BY OFFSHORE WIND AND A RESIDUAL NUMBER OF OTHERS – SUCH AS BIOGAS AND BIOMASS.

TRENDS IN PRICE

- THERE ARE VARIOUS FACTORS THAT AFFECT THE PRICE RESULTING FROM AN AUCTION. IRENA'S REPORT SUMMARIZES THEM INTO 4 CATEGORIES:
 1. COUNTRY-SPECIFIC CONDITIONS SUCH AS RESOURCE AVAILABILITY AND THE COSTS OF FINANCE, LAND AND LABOUR,
 2. INVESTORS' CONFIDENCE,
 3. OTHER POLICIES RELATED TO RENEWABLE ENERGY (GRID POLICIES, PRIORITY DISPATCH, LOCAL CONTENT RULES)
 4. THE DESIGN OF THE AUCTION.

3. CASE STUDIES

RES-E Auctions Schemes Case Studies

RES WG has circulated a questionnaire among MEDREG Members and 15 responses were received (Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Palestine, Portugal, Slovenia, Turkey).

Note: 1. The questionnaire was focusing on the current policies that MEDREG Members are using and data concerning competitive auction schemes were mainly provided from 2013 and beyond.



Overview of Support Schemes

	Feed-in tariff (FIT)	Feed-in premium (FIP)	Tradeable Green Certificates (TGC)	Competitive auction schemes	Investment grants	Open window	tax exemptions/incentives	Other
Albania	Green	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Algeria	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Croatia	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Cyprus	Green	Yellow	Yellow	Green	Green	Yellow	Green	Green
Egypt	Green	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Green
France	Green	Green	Yellow	Green	Yellow	Green	Green	Yellow
Greece	Green	Green	Yellow	Green	Green	Yellow	Green	Green
Italy	Green	Green	Yellow	Green	Yellow	Yellow	Green	Yellow
Israel	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow
Jordan	Yellow	Yellow	Yellow	Green	Green	Yellow	Green	Green
Lebanon	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Green
Palestine	Green	Yellow	Yellow	Yellow	Yellow	Green	Green	Green
Portugal	Green	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Slovenia	Green	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Turkey	Green	Yellow	Yellow	Green	Yellow	Yellow	Green	Yellow

Role of the Regulator

	Competent Authority	Comment
Albania	Ministry	The NRA does not have any role in the procedure
Algeria	Ministry or NRA	For small capacities up to 20GWh per year the Regulator is the competent authority. For the capacities beyond 20GWh per year, the Ministry of Energy is in charge. In second case, the Regulator gives an opinion on the price of the lowest tender, to define if it is acceptable or not.
Croatia	n/a	
Cyprus	Ministry	The NRA informally provide its guidance
Egypt	Ministry & NRA	
France	Ministry & NRA	The indicative planning of auctions (which includes the frequency of auctions and their design in terms of technology and capacity) as well as the auctions' ToR are determined by the Gov. The NRA is consulted on both the planning and the ToR. The competent authority for carrying out the auction is the NRA.
Greece	Ministry & NRA	
Italy	Ministry	The NRA does not have any role in the procedure
Israel	NRA	
Jordan	Ministry & NRA	In Jordan there is a Direct Proposal Scheme whereby the RES developer proposes to MERM a project with a fixed tariff. The level of the tariff should be within an acceptable range according to the reference price list that is prepared by the NRA
Lebanon	Gov.	
Palestine	n/a	
Portugal	Ministry	
Slovenia	NRA	
Turkey	Ministry & TSO & NRA	For Licensed Projects: EMRA (NRA) is responsible for receiving the pre-license applications and making the pre-evaluation of these applications. The projects passing the pre-evaluation phase (both in terms of technical and financial eligibility) are sent to TEIAS (TSO) for conducting auctions. For YEKA (Gov.) projects: EMRA has no responsibility in application and tendering sessions; it only carries out the licensing operations after tender was completed.

	RES Technologies (year and capacity in which tendering process has been carried out)					
	PV	Wind on shore	Wind offshore	Biomass	Technology Neutral	Other
Albania	2018 (50MW)					
Algeria	In 2016 the Ministry announced an auctioning process for the installation of 4,050MW PV	No value				
Croatia						
Cyprus	2013 (40MW)					
Egypt		2013 (250MW)				
France	2017 (1575MW) 2018 (1902MW)	2018 (626MW)		2018 (53MW)	2018 (wind & PV)	Hydro 2016 (27MW) & 2018 (29,6MW)
Greece	2016 (40MW) & 2018 (169MW)	2018 (337MW) &			2019 (PV& wind on shore) (437,87MW)	
	2019 & 2020 plans	2019 & 2020 plans				
Israel	2017 (355MW) & 2019 (700MW)					
Italy		2013 (400MW) 2014 (356MW) 2016 (800MW)	2016 (30MW)	2013 (34MW) 2014 (18MW) 2016 (20MW)		Geothermal 2016 (20MW)
Jordan	2015 (200MW) & 2018 (250MW)	2015 (117MW), 2016 (80MW), 2018 (170MW)				
Lebanon	2019 (180MW)	2018 (206,7MW)				Hydro
	PV with battery energy storage					
Palestine						
Portugal	2019 (1400MW)					Implemented
Slovenia	2016 (3,78MW) 2017 (3,129MW) 2018 (16,33MW)	2016 (25,34MW) 2017 (80,92MW) 2018 (108,71MW)		2016 (2,2MW) 2017 (0,4MW) 2018 (1,41MW)		No plans so far
						Potential plans
Turkey	2015 (600MW) & 2017 (1000MW)	2017 (1000MW)				geothermal 18

	Weighted average price per MWh and per technology resulted from the latest auctions in each country					
	PV	Wind on shore	Wind offshore	Biomass	Technology Neutral	Other
Albania	2018 (59,9 €/MWh)					
Algeria	n.a.	n.a				
Cyprus	2013 (93€/MWh)					
Egypt						
France	2017 (62-77 €/MWh for ground-based installations 85-93€/MWh for roof top installations 93-99€/MWh for installations on parking shelters)	2018 (65,4€/MWh)		2018 (122,5€/MWh)		Hydro 2018 (89,9€/MWh)
Greece	2018 (66,66€/MWh) for Ppv≤1MW 2018 (63,81€/MWh) 1MW<Ppv≤20MW	2018 (58,58€/MWh)			2019 (PV& wind on shore) (57,03€/MWh)	
Israel	2019 (47,5€/MWh)					
Italy		2016 (66€/MWh)	2016 (161,7€/MWh)	2016 (112.87€/MWh)		Geothermal 2016 (82,32€/MWh)
Jordan	2015, 2018 n.a.	2015, 2016, 2018 n.a.				
Lebanon	2019 (51,22€/MWh)	2018 (84,14€/MWh for the first 3 years & 77,3€/MWh) for the next 17years				
Portugal	2019 (20,33€/MWh) average FIT					
Slovenia	2018 (67,4€/MWh)	2018 (63,7€/MWh)		2018 (147,17€/MWh)		
Turkey	2017 (63,5€/MWh)	n.a.				I Implemented No auction

Overview of RES auction tools

	Type of auction used	Special IT tool	Safety net value
Albania	n.a.	n.a.	n.a.
Algeria	Sealed bid auction (alignment to the lowest price)	NO	YES
Cyprus	Descending bid auction	Electronic Platform	YES
Egypt	n.a.	Electronic Platform	NO
France	Pay-as-bid	Electronic Platform	YES
Greece	Descending bid auction	Electronic platform	NO
Israel	1 st & 2 nd price sealed bid auction	Electronic platform	YES
Italy	Descending bid auction	NO	NO
Jordan	Direct proposal scheme	NO	NO
Lebanon	Descending bid auction	NO	YES
Portugal	Ascending clock model, with several rounds, and pay-as-bid price	Electronic platform	YES
Slovenia	Lowest offered price of electricity up to the use of offered funds	NO	YES
Turkey	Several types (e.g. Reduction from a predetermined ceiling price as sealed-bi type followed by an open session for further reduction of the auction price by the participation of 5 min. offers)	NO	NO



Requirements or Constraints for the bidder

	Legal Requirements	Proof of financial adequacy	Past experience	Technological & professional requirements	Location constraints	Guarantee from a bank or credit institution	Grid access permit	other	Same terms apply for all eligible technologies?
Albania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Algeria									NO
Cyprus									NO
Egypt									n.a.
France									NO
Greece									YES
Israel									NO
Italy									YES
Jordan									YES
Lebanon									YES
Portugal					Predefined location				nap
Slovenia									YES
Turkey									NO

SWOT Analysis of Auctions

Strengths

1. Cost Efficiency due to price competition
2. Useful to establish competitive pricing
3. Investor security linked to long term PPAs
4. Policy objectives can be achieved through auctions
5. Auctions are useful for volume and budget control
6. Flexibility on design

Weaknesses

1. Long and cumbersome administrative procedures
2. Discontinuous market development
3. Possibility of strategic behaviour
4. Participating in auctions requires resources that small scale or new project developers may not have
5. Competitive bidding may lead to underbidding

Opportunities

1. Development of different RET
2. Large-scale established developers are more likely to win a bid
3. Winning prices resulting from healthy competitive bidding can be used to establish cost-based FIT levels for certain RET
4. Potential of real price discovery

Threats

1. Deficient competition
2. Risk of winners' curse and underbidding
3. Fail to deliver on time projects due to unrealistically low bids
4. Countries that have legally binding targets for RES-E, can easily fall back on their plan and targets
5. Failure to achieve the minimum mass of participants

THE MERITS OF AUCTIONS: GERMANY

- **2015:** THE FIRST PILOT AUCTION YIELDED A PRICE THAT WAS SLIGHTLY HIGHER THAN THE COMPARABLE FIT IN PLACE AT THE TIME. ACCORDING TO IRENA, THIS HIGHER PRICE MAY HAVE BEEN PARTLY DUE TO THE UPFRONT TRANSACTION COSTS THAT BIDDERS HAD TO INCUR, THIS BEING THE FIRST RES AUCTION EVER TO BE ORGANISED IN THE COUNTRY. AUCTIONS LED TO FALLING PRICES, THUS CONFIRMING THE SUITABILITY OF THE MECHANISM FOR PRICE DISCOVERY.
- **2017:** GERMANY HELD ITS FIRST AUCTION FOR OFFSHORE WIND POWER, WHEREBY SEVERAL PROJECTS PLACED A BID WITH A STRIKE PRICE OF 0 EUR/MWh. THE BIDDERS EXPRESSED THEIR CONFIDENCE THAT BY THE TIME THEIR PLANTS WOULD GO ONLINE, THEY WOULD NOT REQUIRE ANY SUPPORT FROM THE STATE, BUT COULD COVER THEIR COSTS FROM SELLING THEIR ELECTRICITY ON THE MARKET.

THE EFFECT OF THE LEARNING CURVE: SOUTH AFRICA

- SOUTH AFRICA EXPERIENCED A SHARP DECREASE IN PRICES RESULTING FROM AUCTIONS ON SOLAR PV GENERATION. THIS IMPORTANT COST REDUCTION WAS DUE TO THE EFFECT OF THE LEARNING CURVE: RELEVANT PARTIES STARTING WITH THE FIRST RES AUCTION, BECAME MORE EXPERIENCED WITH THE PARTICULAR TECHNOLOGY AND WITH THE BUSINESS AND REGULATORY ENVIRONMENT.
- ANOTHER IMPORTANT ELEMENT IS THAT THEY HAVE A PREDICTABLE SCHEDULE OF RECURRING AUCTIONS. THIS ELEMENT OF REGULARITY ENABLED STAKEHOLDERS TO LEARN ABOUT THE PROCESS, IMPROVE THE QUALITY OF THEIR BIDS (EVIDENCED BY HIGHER QUALIFICATION RATES) AND REDUCE THEIR COSTS AND THUS BID PRICES.

REDUCING UNDERBUILDING: DENMARK

- IN THE AUCTIONS FOR OFFSHORE WIND POWER PLANTS, DENMARK HAS DESIGNED THE AUCTION PROCESS IN SUCH A WAY THAT CRUCIAL PREPARATORY STEPS ARE ALREADY UNDERTAKEN BEFORE POTENTIAL DEVELOPERS PLACE THEIR BIDS. SUITABLE SITES FOR WIND POWER INSTALLATIONS WERE PRE-SELECTED BY THE GOVERNMENT, AND THE TASK OF CARRYING OUT ENVIRONMENTAL IMPACT ASSESSMENTS WAS ENTRUSTED TO THE TRANSMISSION SYSTEM OPERATOR.
- DENMARK IMPOSES PENALTIES IN CASE OF DELAYS TO THE IMPLEMENTATION OF THE PROJECTS: THE REMUNERATION IS REDUCED FOR DELAYS UP TO ONE YEAR, AND AFTER ONE YEAR, THE PROJECT DEVELOPER HAS TO PAY A PENALTY OF USD 71 MILLION.

4. RECOMMENDATIONS/ CONCLUSIONS

✓ Auction design needs to be adapted to country conditions

(economic situation, structure of the energy sector, maturity of the power market, level of RES deployment)

✓ Clear and Transparent Auction Procedures and framework

✓ Use of safety cautions

(such as critical mass of participants, defining the right size of projects in order to ensure competition and effective project implementation, safety net value, financial guarantees, penalties etc.)

❖ Market Stability– RES Auction Roadmap

No single perfect auction design exists.

Auction design needs to consider policy goals and the current market situation of each country.

Auction design should be monitored to implement adjustments for updated policy goals and market environments.

The extent to which each of the strengths and weaknesses affects the outcome of auctions highly depends on the auction design.



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